

Reputation and image: Some connections to resource environments

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ABSTRACT

The purpose of this paper is to extend knowledge about the external environment in which educational organizations operate and the patterns by which their resource flows translate into sources of uncertainty. Methods include examination of cross sectional and longitudinal data from secondary sources and a survey on a random sample of 80 public research institutions. Results include evidence of associations at group and subgroup levels among uncertain outcomes, resource flows, and institutional prestige. Those findings help clarify a model of linkages to the environment and they lend support to that previously-untested model. Correlation analyses and differences in means tests using the .10 level of statistical significance led to several conclusions. As its main conclusion, this research highlights interactions among the strategic moderation of environmental uncertainty, as achieved through the flexible and convenient modes for course and program delivery, and the dimensions of institution reputation and image. Those interactions point toward a theme of managerial quiescence and lead to recommendations for additional research focusing on how the perceptions of institution prestige relate to various measures of uncertainty and strategy effectiveness. As items seemingly relevant to that research venue, the paper concludes with a discussion of characteristics that serve to differentiate institutions with e-Learning programs from other institutions.

Keywords: environment, moderation, symbolic linkages, reputation, image

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Modes of postsecondary program and course delivery have grown at pace faster than the level of knowledge about them. In harnessing recent advances in technology and responding to various needs inclusive of convenience and flexibility, systems for delivering education via hybrid and online modalities see to have moved from the margin to the mainstream over the past few decades. However, knowledge about the quality, management, and organization of those delivery modes and about the characteristics and performance of institutions offering programs via distance learning remains marginal at best and contains many gaps (Gambescia & Paolucci, 2009; Hanna, 1998, 2000, 2003; Paolucci & Gambescia, 2007). This paper seeks to narrow various gaps by examining some institutions known (Hoagland, 1995) for their historical contributions to technology transfer, to societal betterment, to economic and human resource development and their strategic orientations to external environments.

As an initial step toward addressing various scholarly and practical needs, this paper presents research findings and it advances three learning objectives for readers holding an interest in the environmental, organizational, and managerial facets of distance learning. First, the paper presents information with which to construct, apply, and analyze two objective measures of environmental context. Second, it presents information with which to communicate the interactive nature of environmental uncertainty and institutional strategy. Third, the paper presents information with which to generate knowledge surrounding linkages among course and program delivery mode strategies, resource growth and stability patterns, and institution image and reputation factors.

Receiving guidance from resource dependence theory (Pfeffer & Salancik, 1978) and a corollary model of linkages to the environment (Berger, 2001), the research reported in this paper extends recent works from Hoagland (2012) and others who focused on image and

reputation variables (Bastedo & Bowman, 2011; Bergh, Ketchen, Boyd & Bergh, 2010; Boyd, Bergh & Ketchen, 2010; Kong & Farrell, 2010; Lange, Lee & Dai, 2011; Rindova, Williamson & Petkova, 2010; Rindova, Williamson, Petkova & Sever, 2005; Sweitzer & Volkwein, 2009; Volkwein & Sweitzer, 2005, 2006; Volkwein, Sweitzer & Kulikowich, 2009). In short, this inquiry examines how those variables associate with levels of environmental uncertainty. Furthermore, this research focuses on institutions that both experienced varying amounts of and favorable changes in uncertainty levels and pursued flexible and convenient modes of course delivery. Moreover, this paper discusses the scholarly literature, the theoretical framework, and the managerial function in relation to the strategic moderation of uncertainty.

A Context of Environmental Uncertainty: Patterns in Resource Flows

Birnbaum (1988) portrays higher education managers and administrators as subscribing to principles of cybernetics. Basically, they choose whether to act upon or to ignore unknowns while they remain aware that opportunities, which arise from uncertainty, present "counterintuitive and fluctuating outcomes" (p. 200). According to this view, managers function as thermometers, thermostats, or both depending on their interpretations of the environment and their desires to modify environmental context.

Successful moderation efforts are thought to produce lower levels of environmental uncertainty, as represented by the level of growth or stability in resource flows. Researcher comparisons between the late-1980s and the early-2000s on the amount of federal funding for research found a decline in both a standardized rate of growth and a standardized rate of volatility (see Appendix A in conjunction with the forthcoming section on measurement). On the one hand, flows in federal became more scarce effectively increasing the level of uncertainty

in research university environments. On the other hand, flows in federal funding became more stable effectively decreasing the level of uncertainty.

Table I

Levels of Environmental Uncertainty in Relation to Resource Flow Patterns

Uncertainty Levels	Resource Growth	Resource Instability
Low	High	Low
Medium or mixed	High Low	High Low
High	Low	High

As an illustration of how patterns of growth and instability translate into environmental uncertainty and drawing from a comparison of the data in Appendix A, the middle rows in Table I inform readers that a combination of high (low) resource growth and high (low) resource instability amount to a medium or mixed level of environmental uncertainty. The first and last rows provide greater clarity in terms of the level of environmental uncertainty. For instance, uncertainty is high when resource growth is high and instability is low.

Environmental uncertainty is a central construct in studies of organizations and tasks in strategic and effectiveness planning. A few measures of the uncertainty dimension of environmental context are available and researchers categorize them as either subjective or objective. In contrast to perceived or subjective measures of environmental uncertainty, objective or archival measures of the environment provide a reliable record of growth and instability (Boyd & Gove, 2006; Boyd, Dess & Rasheed, 1993; Rasheed & Prescott, 1987). In

essence, archival measures provide a metric against which to gage alignments of managerial perceptions and actions to the environment. Those measures will receive more attention after an introductory discussion of the conceptual framework guiding that assessment.

A Model of Linkages to the External Environment

Systematic awareness of the environment, as Birnbaum (1988) presents it, may also involve managerial actions and delivery structures that grant or improve access into an organization by key external stakeholders such as representatives from community, industry, and government. The tenets of resource dependence theory (Pfeffer & Salancik, 1978) portray organizations as entities depending on a few major providers of resources, attending to a host of variations in their external environments, and responding to a set of competing and conflicting societal demands. The theory evolved from studies including nonprofit agencies, health care organizations, and higher learning institutions and it is widely cited and applied in the scholarly literature.

According to this perspective, managers interpret the external environment and pursue strategic actions and orientations through which they seek lower levels of environmental uncertainty. In the process of working toward growth, stability, or both in resource flows as well as resource diversification, managers may design structures that change stakeholder's access into the organization and alter the organization's dependence on current and prospective sponsors. It is important to alter those interdependencies because resources at any given moment are both fixed in quantity and sought by other organizations. This may be especially true for taxpayer-supported institutions of higher education receiving financial support from government agencies.

Resource scarcities persist nonetheless whether one focuses on the dollar amounts of research funding from federal government agencies, income from donations by alumni and other

groups, or tuition and fee revenues from students. The same holds true when one focuses on the physical quantities of human resources such as current or prospective students, student and alumni employers, faculty members, administrators, or other stakeholders. By way of a review, resource dependence theorists posit that resource acquisition and diversification strategies are recursive in nature aiming to moderate levels of environmental uncertainty. Those strategies both reflect past levels of uncertainty and can generate more favorable levels in the future. In essence, resource flows exhibiting unstable or low growth patterns suggest a need for strategies that realize growth and stability in resource flows.

Applying the model of institutional linkages to the environment that Berger (2001) derives from the resource dependence perspective, Hoagland (2012) examines how student and institutional successes relate to a set of symbolic and structural linkages and draws attention to areas for future inquiries. One of those areas is the need for scholars to address Berger's (2001) eighth recommendation giving "attention to structural and symbolic connections with the external environment" (p.18), which is unique in its application of resource dependence theory to the organization and management of efforts surrounding student persistence. As part of a larger research stream, Berger's recommendation represents a logical extension to earlier works on institution prestige by Clark et al. (1972) and Kamens (1974).

In advancing the call for researchers to focus on linkages to the environment, Berger asserts reputation and image are two forms of a symbolic linkage. Symbolic linkages are thought to portray what an institution means to various stakeholders in terms of reputation and image. Structural linkages represent the strategies institutions engage while serving stakeholder needs and moderating uncertainties in resource flows. Figure 1 presents the full set of structural and symbolic linkages of Berger's (2001) conceptual model.

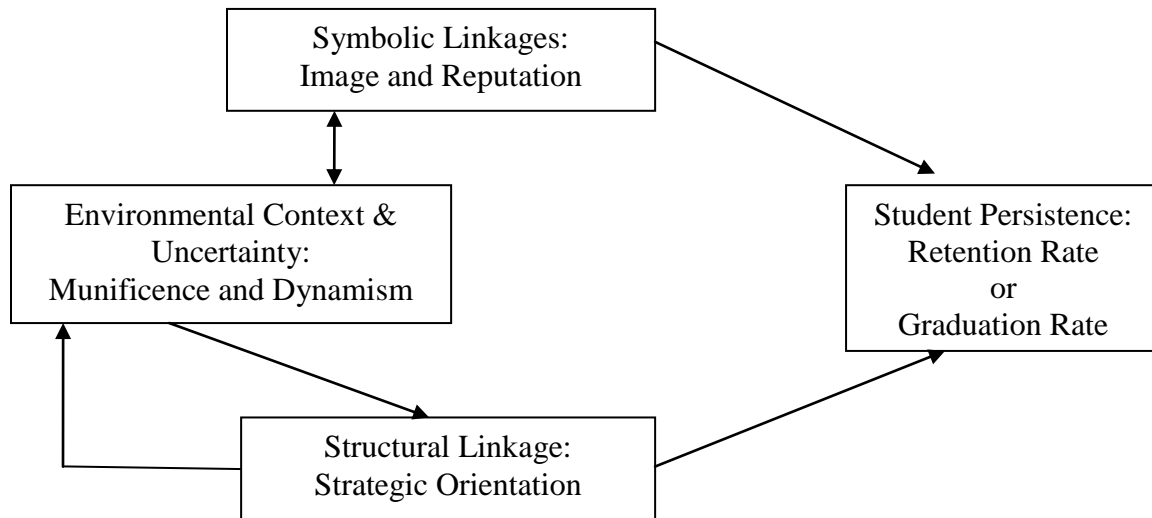


Figure 1. Model of Environmental Moderation and Linkages to Student Persistence

It portrays an association of image and reputation with the environment and a recursive relationship between strategic orientation and the environment. As a matter of background, Hoagland (2012) found evidence supporting those associations and relationships. Consequently, the scope of this paper is much narrower with its focus on associations between environmental context, image, and reputation. In essence, this paper assumes the presence of symbolic and structural linkages to institutional retention and graduation rates and focuses squarely on the areas portrayed by the double-headed arrow.

With its focus on exploring further the connections among image, reputation, and resource flows, this paper represents both a response to the eighth recommendation by Berger (2001) and an additional point of departure from the interchangeable use of reputation and image. Furthermore, it joins and extends recent works by Hoagland (2006; 2012) raising awareness of their confounding nature and the value in deriving common yet separable definitions for image and reputation constructs, which other researchers have used interchangeably or partially as predictor or consequent variables (Bergh, Ketchen, Boyd &

Bergh, 2010; Kong & Farrell, 2010; Rindova, Williamson, Petkova & Sever, 2005; Sweitzer & Volkwein, 2009; Volkwein & Sweitzer, 2005, 2006;). In other words, this paper advances separability between reputation and image and encourages researchers to focus more attention on the image construct.

In summary, this paper provides an analytic framework with its general focus on the intensity by which public doctorate granting institutions engaged course modality as a strategy oriented toward moderation of environmental uncertainty. Specifically, it takes reputation and image into account while examining the levels of course modality orientation in relation to the levels of environmental uncertainty. The linkages model by Berger (2001) laid a foundation from which Hoagland (2006; 2012) found evidence and identified variables supporting it.

Measurement and Variables

This section summarizes the reduction of constructs embedded within the conceptual model and the resource dependence perspective into variables claimed to be valid and reliable measures of those constructs. They are the symbolic linkages variables Image and Reputation, the structural linkage variable Course Modality Orientation (CMO), and the environmental context variables Munificence and Dynamism. In addition, the variable Faculty Qualifications is included to explore how recognition for e-Learning programs corresponds with environmental context and linkages.

This section also provides a rationale and background for using those variables. For instance, the findings from Hoagland (2006), Bastedo and Bowman (2011), and Volkwein and Sweitzer (2005; 2009) identify the need to focus on specific types of institutions. As an extension of various works including Hoagland (2012), this research project gathers data from a survey (Hoagland, 1995), from publications by the National Science Foundation (NSF) and US

News and World Report (2004; 2012), and from computations from principal components analysis against a set of graduation rate correlates (Hoagland, 2006).

Those computations delineated the Reputation and Image factors and produced component scores, which were carried forth from Hoagland (2006) into the recent work by Hoagland (2012) and this current paper. Appendices A and B respectively provide details about those factors and the environmental context variables. In brief, this section describes the variables selected in representing symbolic linkages to the environment, structural linkages to the environment, and the environment itself and it provides a logical basis from which to specify hypotheses for subsequent testing and analyses.

Environmental Context

Drawing from dimensions of the environment identified by Aldrich (1979), Dess and Beard (1984) reduced them to a set of dimensions confirmed since their identification and reduction was accomplished through various factor analytic and descriptive works (Boyd & Gove, 2006; Rasheed & Prescott, 1987). The results from those reductions and confirmations set the stage for researcher selections of single indicators for the purpose of measuring the extent of abundance and volatility in resource flows from the external environment. Descriptive statistics on those two indicators as they pertain to this study are available in Appendix A.

Munificence. It is defined the standardized rate of growth, or decline, in an institution's federal-dollar volume of research. Munificence was calculated using an institution's annual change in its dollar volume of research awards over a period divided by the average volume for that span of time (Dess & Beard, 1984). It is the slope coefficient resulting from a regression model that uses a five-year window.

Dynamism. It is defined as the standardized rate of volatility in an institution's federal-dollar volume of research. Dynamism was calculated using an institution's annual fluctuation in its dollar volume of research awards over a period divided by average volume for that span of time (Dess & Beard, 1984). It is the standard error of the slope estimate which resulted from the same regression model used to calculate Munificence.

The source of data used in calculations of variables Munificence and Dynamism is the National Science Foundation's *Federal Support to Universities, Colleges, and Nonprofit Institutions*. Research volume data were available for federal fiscal years 1989 through 2002 and were separated into sets each five years in length for the purpose of calculating the values of environment variables Munificence and Dynamism; changes in NSF's recordkeeping processes occurred around 2002. The two sets chosen for this study coincide with an initial survey data collection point and a final point five years later.

Structural Linkages: Course Modality Orientation

The source of data on structural linkages is a survey developed and validated by Hethcox (1990). The survey was used by Hoagland (1995) to gather responses from a random sample of 80 public doctorate granting institutions. The chief research or graduate studies' officers of those institutions responded in 1994 to that survey and provided data for subsequent and ongoing analyses.

The resultant tool, Higher Education Economic Development Survey (HEEDS) instrument, in its entirety measures four factors, which are: New Business and Technology Development; Capacity Building; Human Resource Development; and Research, Analysis, and Evaluation. The HEEDS instrument contains a uniform six-point response scale to record the frequency to which universities pursued various strategies. The final coding of survey responses

were reversed to make a "1" equate to "Never" and a "6" equate to "Always" in order to simplify data analyses and presentations.

Item numbered 4.02 in HEEDS is used in this study as the **Course Modality Orientation** (CMO) variable. The Human Resource Development portion of HEEDS contains that item, which appears there as "Offer appropriate instruction at flexible times to meet the unique needs of industry, community, and state/local government in planning for economic development" (Hoagland, 1995, p. 89). Dummy variables were created by sorting the responses for Item 4.02 and then grouping them into two groups of equal size. This process was done in order to facilitate analyses focusing on high and low levels of CMO; all of which was done before detecting and removing seven outliers and explains the adjustment in sample size from 80 to 73 institutions.

Symbolic Linkages: Reputation and Image

The rankings portion of *America's Best Colleges* (US News & World Report, 2004) is an initial source of data used by this researcher for delineating Berger's (2001) bi-dimensional description of symbolic linkages to the environment. Drawing from Berger's assertions about the association of image and reputation with the environment and their relationship to persistence rates, Hoagland (2006) analyzed data from *America's Best Colleges* and found a two dimensional arrangement among the set of graduation rate correlates.

Those correlates are the comprehensive ACT (with SAT concordance) score, the alumni giving rate, the percentage of classes with 50 students or more, the percentage of faculty who are full-time, the percentage of students who finished in the top quartile of their high school class, the acceptance rate, the *Peer Score*, and the type of institution. Another secondary source of data used in computing scores for the variables **Image** and **Reputation** is the Carnegie Foundation for

the Advancement of Teaching's (1987) classification guide. It provided information from which this researcher constructed a dichotomous, or dummy variable, to represent institution control and type. Institutions that were classified as both a state-supported and a doctorate-granting institution received the value of "1" and institutions classified otherwise receive a "0" in the coding process.

Using data from those two secondary sources, Hoagland (2006) conducted principal components analysis to delineate the two dimensions among the set of graduation rate correlates and to generate scores for each dimension. Those scores constitute the numeric values for Image and Reputation, which are employed in Hoagland (2012) and this current study; Appendix B provides details about the variables comprising those dimensions. Some individual variables from those dimensions are employed latter in portions of this study that focus on subsamples.

This study employs Image and Reputation scores, as generated from the work of Hoagland (2006), and a dummy variable for each to represent low and high score levels. The variables Image Level and Reputation Level resulted from a sort on their scores into ascending order before dividing them into groups of equal size. Scores in the lower half were assigned a "0" and those in the upper half were assigned a "1" for each of the two variables in level form.

Ratings of Support for e-Learning Programs: Faculty Qualifications

Portions of this study examine subsamples including one comprised of 18 institutions that offer Bachelor level degree programs in blended and online formats. Those programs vary by type of support and some gain various and multiple recognitions. Among the ratings and recognitions US News and World Report (2012) assigns to colleges and universities, 14 of the 18 institutions in this subsample hold recognitions based on three categories, which are: Student Engagement and Assessment; Student Services and Technology; and, Faculty Credentials and

Training. Of the 14 institutions that received recognition on at least two of three ratings, a dummy variable (**Faculty Qualifications**) was created by this researcher assigning a "1" to six institutions holding recognition on the Faculty Credentials and Training category and a "0" was assigned to the eight holding recognition of the two other categories; Appendix C provides a tabulation of the adjusted and several subsamples.

Hypotheses and Statistical Tests

Three dummy variables, which are Faculty Qualifications, Image Level, and Reputation Level, appear in 7 of the 12 hypotheses. Other hypotheses specify variables using the score-embedded versions of Image and Reputation. Consistent with the scope of this paper and its primary focus on the symbolic linkages to the environment, the hypotheses in alternate test form are specified as follows:

- H1a: An association exists between Munificence and Reputation
- H1b: An association exists between Dynamism and Reputation
- H2a: An association exists between Munificence and Image
- H2b: An association exists between Dynamism and Image
- H3a: A difference exists in mean Munificence by Reputation Level
- H3b: A difference exists in mean Dynamism by Reputation Level
- H4a: A difference exists in mean Munificence by Image Level
- H4b: A difference exists in mean Dynamism by Image Level
- H5a: A difference exists in mean Munificence by Faculty Qualifications
- H5b: A difference exists in mean Dynamism by Faculty Qualifications
- H5c: A difference exists in mean Reputation by Faculty Qualifications
- H5d: A difference exists in mean Image by Faculty Qualifications

All 12 hypotheses are tested at the .10 level of statistical significance. Bivariate correlation analysis is employed to test Hypotheses H1a through H2b. A few difference in means tests are employed to test Hypotheses H3a through H5d and to isolate any distinguishing characteristics that arise from the analyses of data within the subsamples. Those two analytic procedures along with univariate analysis provide information with which to describe various aspects of the reputation and image portion of Berger's (2001) model and to define a set of institutions that may qualify as exemplars for their successful efforts in strategic moderation. The results from those analyses and tests are discussed in the remaining two sections of this paper.

Results & Implications

The results from statistical analyses support 5 of 12 hypotheses and they reflect operations on the original sample of 80 institutions, the adjusted sample of 73 institutions, and subsamples from the latter ranging in size from 53 down to 4; as noted earlier in this paper, seven institutions found to have outlying values on Munificence were omitted from the original sample. A comparison of the adjusted sample to the original 80 institution sample revealed differences in averages for Munificence and Dynamism for the 1992-1996 period, which were slightly, yet significantly lower in the adjusted sample than the original sample. Nonetheless, the results from the comparisons suggest the overall level of uncertainty is the same before and after adjustment.

Organization of the results surround analyses from the adjusted sample and several subsamples. In an effort to isolate distinguishing characteristics, the first subsample identified for a separate analyses consists of the 20 institutions that experienced favorable changes both in Munificence and in Dynamism between the 1992-1996 period and the 1991-2001 period.

Another subsample consists of 11 from the 20 institution subsample that engaged CMO at a level more intensive than the 9 other institutions in the subsample. In essence, the 11 institution subsample consists of institutions that reported a high level of engagement in CMO and experienced a decrease in the levels of environmental uncertainty. It also consists of four institutions with e-Learning programs that received recognitions on two or more support categories. In other words, the analyses of these subsamples take into account data from US News and World Report's (2012) ratings of institutions offering e-Learning programs. A variety of tabulations including those ratings follow in the pages ahead.

Table II

Intercorrelations of Environment with Image and Reputation

Variables	1992-1996 Window		1997-2001 Window	
	Dynamism	Munificence	Dynamism	Munificence
Adjusted Sample (n = 73)				
Image	.22*	.08	.03	.10
Reputation	-.42*	.24*	-.45*	-.25*
Favorable Change in Environment Subsample (n = 20)				
Image	.21	-.29	-.10	-.06
Reputation	-.48*	.15	-.77*	-.59
High Intensity Favorable Change Subsample (n = 11)				
Image	-.18	.39	-.05	.26
Reputation	-.38	.26	-.68*	.31

Notes: Asterisk indicates statistical significance at the .10 level.

The first tabulation of results, which is organized by sample and subsample, directs attention to correlations of Environment with Image and Reputation. By way of a short review, the early window coincides with the survey data collection phase and the latter window represents a period five years after collecting data on CMO. Readers need to remember that the focal point of this paper is the associations of Reputation and Image with Environment.

The data in Table II reveals statistical features about the confounding role of Reputation in moderating environmental uncertainty. The reversal in the sign of the correlation coefficient for Reputation and Munificence is an important feature. The sign is positive in the earlier period, but it is negative in the latter period though the strength of the association between Reputation and Munificence is close to being identical. Furthermore, the results in Table II reveal Dynamism for 1997-2001 is consistent in its negative, significant association with Reputation across all the samples, which seems to support the idea that managers are either attending to the environment and concentrating on resource flow stability, taking into account institution Reputation, or both.

Figure 2 summarizes the statistically significant results from correlation analyses against data from the adjusted sample. It also illustrates the reversal in the sign of associations between Munificence and Reputation across two windows of time. For instance, this finding means Reputation corresponds initially with a low level of uncertainty and subsequently with a high level of uncertainty. These findings merit some contemplations at this point regarding whether or how Reputation confounds strategic moderation of environmental uncertainty. First and foremost, Hoagland (2012) provides evidence of how CMO links concurrently with Munificence and Dynamism in the 1992-1996 window and then yields favorable changes to them five years later in the 1997-2001 window.

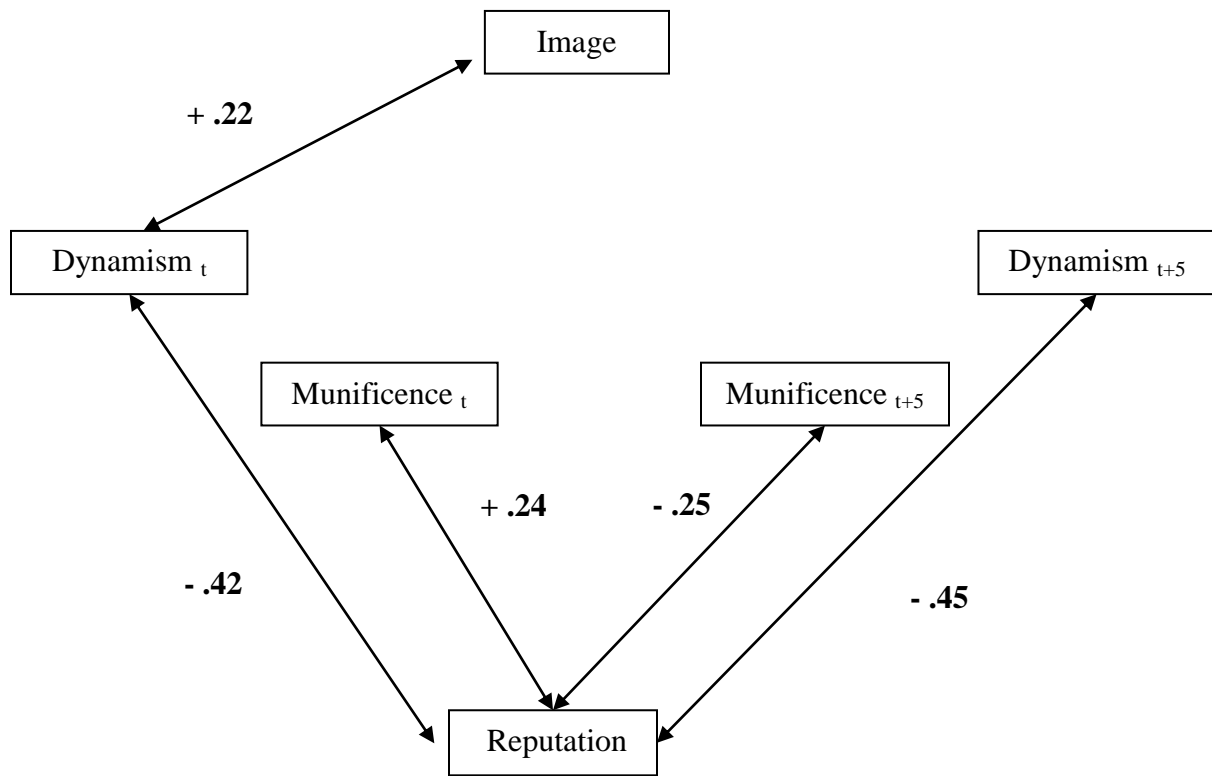


Figure 2. Statistically Significant Correlations of Reputation and Image with the Environment

Notes: Sample of 73 institutions; coefficients significant at .10 level (two tailed test)

Subscript t is for the 1992-1996 window and subscript t+5 is for the 1997-2001 window

The role of Reputation in moderating Munificence remains unclear however and it seems to warrant exploration of how managers and/or their institutions internalize Reputation in their tasks centering on strategic and effectiveness planning.

Image, which bears a single statistically significant association with a high level of uncertainty in the early period, is an insignificant variable among the results with one additional exception. In an initial search for statistically significant distinguishing characteristics among those institutions that experienced favorable changes in both Munificence and Dynamism, mean Image for the 11 institutions that pursued a high intensity CMO is higher than the mean Image

for those 9 institutions that pursued a low intensity CMO. This result seems consistent with evidence in Hoagland (2012) relating Image, Dynamism 1992-1996, and Munificence 1997-2001 to CMO. Additional instances of statistically significant differences in mean Image appear the discussions ahead.

As a summary preceding the presentation of subsample analyses, readers may recall the number of institutions were split into two levels according to the CMO intensity before seven institutions (five from the low intensity level and two from the high intensity level) were omitted from analyses due to their identification as outliers on Munificence for the 1997-2001 period. Of the 73 institutions retained from the 80 in the original sample, 20 of them realized favorable changes in the level of environmental uncertainty over a five year period according to the data in Table III. That finding means both Munificence was higher and Dynamism was lower in 1997-2001 than they were in 1992-1996 for 20 of 73 institutions.

Table III

Number of Institutions by Course Strategy Orientation and Changes in Environmental Context

Level of Course Strategy Intensity	Change in Munificence	<u>Change in Dynamism</u>		Row Totals
		Unfavorable	Favorable	
Low ($n = 35$)	Favorable	22	9	31
	Unfavorable	2	2	4
High ($n = 38$)	Favorable	23	11 [#]	34
	Unfavorable	1	3	4
Column Totals		48	25	73

Notes: # indicates institutions with a high intensity level in course modality orientation and favorable changes in Munificence and Dynamism over a five year period of time.

At another level in the tabulations, a focus on 11 of the 20 institutions that carry a high level of CMO strengthens the view that CMO is a viable means through which to advance human resources and economic development. Combining that practical perspective with the theoretical perspective, the author of this study submits those 11 institutions as focal points in this work and possibly future studies.

Table III also provides a summary of the extent to which course modality orientation was effective in moderating environmental uncertainty. In terms of the adjusted sample containing 73 institutions, about one quarter (9 out of 35) of the low intensity approaches and one third (11 out of 38) of the high intensity approaches correspond with favorable outcomes. Conversely, a focus on an indeterminate number of the low intensity approaches would shed more light on how Reputation, Image, stability, and growth relate to strategic moderation.

One of the issues here is whether unfavorable changes in one or both of the environment measures confounds managerial interpretations of environmental uncertainty and leads them to favor growth or stability, to rely on institution reputation or image, or both. A need exists for data on managerial preferences for growth or stability and their reliance on image and/or reputation as they may pertain to their tasks in strategic and effectiveness planning. Another issue relates to subsample size and the fact that many of the cells contain fewer than five observations making it difficult to assess statistical independence and the degree to which observed counts correspond with expected counts. Casting those gaps aside in an effort to integrate the practical, theoretical, and statistical significance of this study, the remaining tables proceed to describe those 11 institutions and how they compare especially in terms of the ratings of institutions with e-Learning programs.

The results from statistical analysis using the ratings of undergraduate level e-Learning programs from *US News and World Report* (2012) provide additional insights into the role of distance learning arrangements in strategic moderation of environmental uncertainty levels.

Table IV provides a summary of ratings assigned to 4 of the 11 institutions in the high intensity CMO subsample; the remaining 7 seven institutions consists of 3 absent from the ratings and 4 without e-Learning programs. Four (two each) of those six institutions delivered programs in a blended format and a 100% online format. One of the two blended-format institutions received recognition on all three of the support categories. The remaining three received recognition on two or more support categories; Appendix C provides more details on the subsamples and breakouts according to delivery mode and format.

Table IV

High Intensity Subsample with 2012 Ratings for Baccalaureate Level e-Learning Programs

Recognitions from US News & World Report Ratings	Blended	100% Online	Row Totals
Two of three ratings: Student Engagement and Assessment plus Student Services and Technology	1	2	3
All Three Ratings: Two above plus Faculty Credentials and Training	1	0	1
Totals	2	2	4

Notes: Source of information is <http://www.usnews.com/education/online-education>.

In order to learn more about those four institutions with e-Learning programs, the search for distinguishing characteristics entails analyses of subsamples and directs some attention to two variables. Hoagland (2006) and Appendix B inform us that one loaded on the Reputation dimension and the other loaded on the Image dimension. They were the percentage of full-time

faculty, which loaded on Image, and the percentage of first year college students in the top quartile of their high school class, which loaded on Reputation. Both elements are statistically and significantly higher for institutions rated on all three categories than those rated on one or two categories.

One set of results indicate the institution with recognition on the Faculty Credentials and Training category has a mean proportion of faculty who are full-time larger than the mean for the three institutions with dual recognition on the Student Engagement and Assessment and the Student Services and Technology categories. The difference in means is statistically significant at the .10 level. Another set of results, which are also significant in that manner, indicate the institution with recognition on all three categories has a mean proportion of new students from the top quartile of their high school class larger than the mean for the three institutions with a dual recognition. In essence, the evidence from this small subsample and other studies suggests institutions that experienced lower levels of uncertainty and/or higher levels of performance were allocating substantial resources toward faculty use (Boyd, Berg, & Ketchen, 2010; Rindova, Williamson & Petkova, 2010), were selective in recruiting students, and were intensive in engaging flexible and convenient course offerings (Hoagland, 2012). Aside from considerations regarding subsample size, it is becoming apparent that reputation is a complex and confounding aspect in the strategic moderation of environmental uncertainty.

Looking vertically down through the columns in Table V for each set of window specific results, a pattern of decreasing Dynamism and increasing Munificence becomes apparent from which it is reasonable to conclude there are reductions in environmental uncertainty. Looking horizontally across the rows in that table, the previously-noted sign reversal in Munificence for 1997-2001 becomes apparent in both the sample and the subsample. However, the levels of

environmental uncertainty are lower for the high level of Reputation than they are for the low level of Reputation. Per the last column, difference in mean Munificence across levels of Reputation is statistically significant at the .10 level. A similar pattern of statistically significant results occur in the data from the subsample of 11 institutions except mean Dynamism (1997-2001) is 0.03 for a low level of Reputation and is 0.01 for high level of Reputation (statistically significant at .03 level). It is only difference in means from that subsample of data that is statistically significant. Table V summarizes results that are statistically significant under the assumption of equality in variance across all the two level groupings.

Table V

Mean Differences in Munificence and Dynamism for Institutions by Level of Reputation

Variable	Window	Low Level			High Level			<i>t</i> -test
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	Sig.

Adjusted Sample (<i>n</i> = 73)								
Dynamism	1992-1996	32	0.05	0.04	29	0.03	0.02	.00
Dynamism	1997-2001	32	0.06	0.05	29	0.03	0.02	.00
Munificence	1992-1996	32	-0.02	0.11	29	0.03	0.05	.01
Munificence	1997-2001	32	0.15	0.10	29	0.09	0.08	.02
Favorable Changes Subsample (<i>n</i> = 20)								
Dynamism	1992-1996	6	0.08	0.06	9	0.03	0.02	.03
Dynamism	1997-2001	6	0.04	0.02	9	0.02	0.01	.00
Munificence	1992-1996	6	-0.09	0.18	9	0.03	0.07	.09
Munificence	1997-2001	6	0.17	0.07	9	0.11	0.05	.10

Returning to the 73 institution sample for final analyses, a comparison of the 20 institutions that realized favorable changes in both Munificence and Dynamism to the other 53 that did not realize such joint gains, the final search for distinguishing characteristics found three variables with statistically significant differences at the .10 level. The means are comparatively higher in that 20 institution subsample on three variables: Dynamism for the 1997-2001 period, Reputation, and admissions test scores; the last two variables appear in Appendix B. These results provide evidence of the associations of student selectivity and high Reputation level with lower levels of environmental uncertainty.

The last set of results covers variables that differ in their means for the purpose of highlighting statistically significant distinctions among the various subsamples and the adjusted sample. That set draws from the various cross tabulations that appear in Appendix C and directs attention to three findings. First, mean Image is higher for the 11 institutions delivering baccalaureate level e-Learning programs in blended format than it is for the other 62 institutions. This result takes on additional meaning with further examinations of Image and analyses from subsamples in tandem with considerations to the contents of Appendices B and C.

Second, a comparison of the 38 institutions pursuing a high intensity CMO to the 35 pursuing a low intensity CMO revealed the following results: mean Image is comparatively lower for the high intensity pursuit, as are two of its components; the mean percentage of full-time faculty, which is one component of Image, is comparatively lower for the high intensity pursuit; and, the mean percentage of large classes (with 50 or more students), which is another component of Image, is comparatively lower for the high intensity pursuit. Those results, as they pertain to a high intensity CMO, seem to inform us that highly flexible and convenient modes of

course delivery typically engage more part-time or adjunct faculty and occur through smaller class settings than does a low intensity CMO.

Third, a comparison of the 38 high intensity CMO institutions found 27 that experienced an unfavorable change in the variables Munificence or Dynamism and 11 that experienced favorable changes in both variables. The mean percentage of large classes and the mean Reputation are higher for the favorable change subsample than they are for the unfavorable change subsample.

In summary, the results tend to provide evidence in support of resource dependence theory particularly with regard to the combination of a high intensity CMO with a favorable change in environmental uncertainty. Furthermore, the positive association discussed earlier between Dynamism and Image and the mixed associations between environmental uncertainty and Reputation appear relevant to the organization and management of modes for packaging courses and programs via distant delivery.

Conclusions and Implications

Image and Reputation are variables that apparently confound the efforts of administrators, institutions, or both to moderate environmental uncertainty and to carry out their tasks in strategic and effectiveness planning. At the broadest level, this matter needs clarification in at least two ways given the scope of this paper. One the one hand, the manner by which the full-time status of faculty varies with CMO intensity levels suggests Reputation confounds strategic moderation. One the other hand, the manner by which Image varies with CMO intensity levels among institutions that experienced favorable changes in environmental uncertainty levels suggests Image confounds strategic moderation. At a narrower level, the

results from subsample analyses offer some parting thoughts regarding parallels between strategic moderation of resource environments and recent ratings of e-Learning programs.

Some parts of this concluding section direct attention to a set of institutions fitting classification as exemplars within the context of strategic moderation. Other parts address patterns in the linkages between reputation and environmental uncertainty. Taking all the parts into consideration, the results draw researchers toward the association between Reputation and Dynamism, which remains favorable into the latter period, though the association between Reputation and Munificence in the latter period translates into an increase in the level of uncertainty. These findings suggest institutions pursuing varied levels of intensity on their course modality orientation gained some ground in terms of a temporal reduction in the level of environmental uncertainty.

The consistent negative correlation between Reputation and Dynamism across two time frames draws less attention than the reversal across time in correlation between Reputation and Munificence from a positive to a negative sign. Again, the latter result elevates the notion that managers take into account the reputations of their employing institutions as they pursue their tasks in strategic and effectiveness planning. The author of this study posits a theory of managerial quiescence implying managers at institutions that have a high reputation tend to rely more on that reputation and attend less to environmental context. In need of further clarification and elaboration, this finding and implication sets the stage for additional studies using Reputation and Image as predictor, intervening, and consequent variables in conjunction with variables measuring the locus of managerial focal points along with their preferences for growth or stability in resource flow patterns.

Time is usually a factor in many aspects of practice and scholarship. Returning for a moment to the temporal, relative nature of image and reputation, the age of an institution seems to be a relevant variable and may well shed light on that nature. Researchers may want to include that variable in their future work on institutional reputation, image, and prestige. Another item with regard to complexity is the size of an institution. Age and size appear to be relevant variables omitted from this study and the model of structural and symbolic linkages.

Taking into account the sizeable portion of this paper's focus on subsamples of institutions that experienced favorable changes in resource flows especially in relation to a high intensity CMO, the collaborative and broad nature of a CMO merits some attention though community engagement aspects of strategic moderation efforts are beyond the scope of this paper. Shifting attention toward the larger sample and population of institutions, researchers may want to focus on the community engagement aspect in relation to strategic moderation efforts, e-Learning program recognitions, environmental linkages, or some combination of these and other factors.

In closing, this study incorporates data from primary and secondary sources and takes a quantitative approach toward generating a better understanding of strategic moderation of environmental uncertainty. In essence, it provides a foundation for additional inquiries including those taking a qualitative (case study, for instance) or a mixed methods approach in exploring a few institutions as possible exemplars of strategic moderation. It also provides a foundation to explore managerial perspectives toward institutional reputation and image and preferences for resource growth and stability. Finally, future studies could refine various theoretical and practical frameworks or develop new frameworks as an extension of lessons learned from a sample of institutions known for their provisions of flexible and convenient offerings to a variety

of stakeholders, their historical contributions to human resource and economic development, and their emphases on research, graduate studies, and technology or knowledge transfer.

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Appendix A

Sample Descriptive Statistics on Munificence and Dynamism

Window	N	Mean	SD	Range	
				Low	High
Dynamism					
1989-1993	73	0.057	0.085	0.000	0.550
1990-1994	73	0.055	0.074	0.008	0.524
1991-1995	73	0.069	0.077	0.005	0.468
1992-1996	73	0.045	0.036	0.007	0.176
1993-1997	73	0.046	0.038	0.006	0.155
1994-1998	73	0.046	0.039	0.006	0.211
1995-1999	73	0.046	0.042	0.006	0.247
1996-2000	73	0.054	0.066	0.001	0.415
1997-2001	73	0.048	0.047	0.005	0.250
1998-2002	73	0.050	0.055	0.005	0.338
Munificence					
1989-1993	73	0.102	0.169	-0.420	0.970
1990-1994	73	0.047	0.095	-0.299	0.343
1991-1995	73	0.015	0.147	-0.838	0.268
1992-1996	73	0.007	0.084	-0.441	0.174
1993-1997	73	0.022	0.072	-0.167	0.296
1994-1998	73	0.036	0.079	-0.133	0.294
1995-1999	73	0.051	0.108	-0.326	0.327
1996-2000	73	0.089	0.093	-0.151	0.393
1997-2001	73	0.115	0.091	-0.245	0.392
1998-2002	73	0.125	0.104	-0.225	0.609

Notes: Study includes 1992-1996 and 1997-2001 windows

Appendix B

Components and Factor Loading Results

Variable	Reputation	Image
<hr/>		
US News and World Report's <i>Peer Score</i>	<u>0.84</u>	0.24
Percent of New Entrants in Top Quartile of High School Class	<u>0.81</u>	-0.05
Acceptance Rate	<u>-0.69</u>	-0.10
ACT Scores	<u>0.82</u>	0.17
Percent of Institution's Faculty Being Full-time	0.34	<u>0.54</u>
Alumni Giving Rate	<u>0.70</u>	-0.20
Percent of Classes With 50 or More Students	0.06	<u>0.90</u>
Institution Type (Public and Doctorate Granting, (Yes=1; No=0)	-0.16	<u>0.87</u>

Source: Hoagland, S.R. (2006). *Exploring Correlates of University Graduation Rates: An Updated Case for Consumer Education*. ERIC Document Number ED519563

Appendix C

Sample and Subsamples: Number of Institutions by Delivery Mode and Format

Level and Mode of Course Strategy Intensity		Institutions with e-Baccalaureate Programs				
		n	Total	Recognition Categories		
				None	One or Two	All Three
Adjusted Sample						
Low	Blended		5	2	1	2
	100% Online		2	0	1	1
	Subtotals	35	7	2	2	3
High	Blended		6	2	3	1
	100% Online		5	0	3	2
	Subtotals	38	11	2	6	3
Sample Totals		73	18	4	8	6
Favorable Changes Subsample						
Low	Blended		3	1	0	2
	100% Online		0	0	0	0
	Subtotals	9	3	1	0	2
High	Blended		5	3	1	1
	100% Online		2	0	2	0
	Subtotals	11	7	3	3	1
Subsample Totals		20	10	4	3	3